

Title (en)
METHOD AND APPARATUS FOR SUPPRESSION OF NOISE DUE TO LOCAL OSCILLATOR INSTABILITY IN A COHERENT FIBER OPTICAL SENSOR

Title (de)
VERFAHREN UND VORRICHTUNG ZUR UNTERDRÜCKUNG VON RAUSCHEN AUFGRUND VON LOKALER OSZILLATORINSTABILITÄT IN EINEM KOHÄRENTEN OPTISCHEN FASEROPTISCHEN SENSOR

Title (fr)
PROCÉDÉ ET APPAREIL DE SUPPRESSION DU BRUIT EN RAISON D'UNE INSTABILITÉ D'OSCILLATEUR LOCAL DANS UN CAPTEUR DE FIBRE OPTIQUE COHÉRENT

Publication
EP 3757522 B1 20210721 (EN)

Application
EP 19305874 A 20190628

Priority
EP 19305874 A 20190628

Abstract (en)
[origin: EP3757522A1] A method for measuring a response from an optical fiber providing distributed back reflections using a system comprising an optical source comprising a laser, an optical receiver and a processing unit is disclosed. The method comprises generating an interrogation signal and an optical local oscillator using the optical source, the interrogation signal being represented by an interrogation phasor and the optical local oscillator being represented by a local oscillator phasor; transmitting the interrogation signal into the optical fiber; and mixing the optical local oscillator with reflected light from the optical fiber and detecting a mixing product with the optical receiver to achieve a receiver output signal. The method further comprises performing a measurement that characterizes fluctuations in the local oscillator phasor; processing the receiver output signal based on the measurement result to provide a corrected receiver output signal such that an effect of fluctuations in the local oscillator phasor on the corrected receiver output signal is reduced; and applying distributed back-reflection processing on the corrected receiver output signal. Finally, the method comprises extracting the response from the optical fiber from the distributed back-reflection processing output. A system for measuring a response from an optical fiber providing distributed back reflections is also disclosed.

IPC 8 full level
G01D 5/353 (2006.01); **G01M 11/00** (2006.01)

CPC (source: CN EP US)
G01D 5/353 (2013.01 - CN); **G01D 5/35306** (2013.01 - EP US); **G01D 5/35358** (2013.01 - EP US); **H04B 10/61** (2013.01 - US)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
EP 3757522 A1 20201230; EP 3757522 B1 20210721; CN 112146689 A 20201229; CN 112146689 B 20220826; US 11828631 B2 20231128; US 2020408572 A1 20201231; US 2024159574 A1 20240516

DOCDB simple family (application)
EP 19305874 A 20190628; CN 202010589879 A 20200624; US 202016911092 A 20200624; US 202318519491 A 20231127